

# Fertility Issues in Girls and Women with Cancer

Many cancer treatments can affect a girl's or a woman's fertility. Most likely, your doctor will talk with you about whether or not cancer treatment may lower fertility or cause infertility.

However, not all doctors bring up this topic. Sometimes you, a family member, or parents of a child being treated for cancer may need to initiate this conversation.



Treatment for cancer may cause changes to a girl's or a woman's fertility. Credit: National Cancer Institute

Whether or not your fertility is affected depends on factors such as:

- your baseline fertility
- your age at the time of treatment
- the type of cancer and treatment(s)
- the amount (dose) of treatment
- the length (duration) of treatment
- the amount of time that has passed since treatment
- other personal health factors

It's important to learn how the recommended cancer treatment may affect fertility before starting treatment if at all possible. Consider asking questions such as:

- Could treatment increase the risk of, or cause, infertility? Could treatment make it difficult to become pregnant or carry a pregnancy in the future?
- Are there other recommended cancer treatments that might not cause fertility problems?
- Which fertility preservation options would you advise for me?
- What fertility preservation options are available at this hospital? At a fertility clinic?
- Would you recommend a fertility specialist (such as a reproductive endocrinologist) that I could talk with to learn more?
- Is condom use advised, based on the treatment I'm receiving?
- Is birth control also recommended?
- What are the chances that my fertility will return after treatment?

## Cancer Treatments May Affect Your Fertility

Cancer treatments are important for your future health, but they may harm reproductive organs and glands that control fertility. Changes to your fertility may be temporary or permanent. Talk with your healthcare team to learn what to expect based on your treatment(s):

- Chemotherapy (especially alkylating agents) can affect the ovaries, causing them to stop releasing eggs and estrogen. This is called primary ovarian insufficiency (POI). Sometimes POI is temporary and your menstrual periods and fertility return after treatment. Other times, damage to your ovaries is permanent and fertility doesn't return. You may have hot flashes, night sweats, irritability, vaginal dryness, and irregular or no menstrual periods. Chemotherapy can also lower the number of healthy eggs in the ovaries. Women who are closer to the age of natural menopause may have a greater risk of infertility. The National Institute for Child Health and Human Development (NICHD) has more information about primary ovarian insufficiency.  
<https://www.nichd.nih.gov/health/topics/poi/conditioninfo/default>
- Radiation therapy to or near the abdomen, pelvis, or spine can harm nearby reproductive organs. Some organs, such as the ovaries, can often be protected by ovarian shielding or by oophoropexy—a procedure that surgically moves the ovaries away from the radiation area. Radiation therapy to the brain can also harm the pituitary gland. This gland is important because it sends signals to the ovaries to make hormones such as estrogen that are needed for ovulation. The amount of radiation given and the part of your body being treated both play a role in whether or not fertility is affected.
- Surgery for cancers of the reproductive system and for cancers in the pelvis region can harm nearby reproductive tissues and cause scarring, which can affect your fertility. The size and location of the tumor are important factors in whether or not fertility is affected.
- Hormone therapy (also called endocrine therapy) used to treat cancer can disrupt the menstrual cycle, which may affect your fertility. Side effects depend on the specific hormones used and may include hot flashes, night sweats, and vaginal dryness.
- Bone marrow transplants, peripheral blood stem cell transplants, and other stem cell transplants involve receiving high doses of chemotherapy and/or radiation. These treatments can damage the ovaries and may cause infertility.
- Other treatments: Talk with your doctor to learn whether or not other types of treatment such as immunotherapy and targeted cancer therapy may affect your fertility.

## Emotional Considerations and Support for Fertility Issues

For some women, infertility can be one of the most difficult and upsetting long-term effects of cancer treatment. Although it might feel overwhelming to think about your fertility right now, most people benefit from having talked with their doctor (or their child's doctor, when a child is being treated for cancer) about how treatment may affect their fertility and learning about options to preserve their fertility.

Although most people want to have children at some point in their life, families can come together in many ways. For extra support during this time, reach out to your health care team with questions or concerns, as well as to professionally led support groups.

If you are the parent of a young girl or teen with cancer, this video of fertility options for young female cancer patients from the Children's Hospital of Philadelphia may help you talk with your daughter and her doctor. <https://www.youtube.com/watch?v=XQ1Plg7dSPU>

## **Fertility Preservation Options for Girls and Women**

Women and girls with cancer have options to preserve their fertility. These procedures may be available at the hospital where you are receiving cancer treatment or at a fertility preservation clinic.

Talk with your doctor about the best option(s) for you based on your age, the type of cancer you have, and the specific treatment(s) you will be receiving. The success rate, financial cost, and availability of these procedures varies.

- Egg freezing (also called egg or oocyte cryopreservation) is a procedure in which eggs are removed from the ovary and frozen. Later the eggs can be thawed, fertilized with sperm in the lab to form embryos, and placed in a woman's uterus. Egg freezing is a newer procedure than embryo freezing.
- Embryo freezing (also called embryo banking or embryo cryopreservation) is a procedure in which eggs are removed from the ovary. They are then fertilized with sperm in the lab to form embryos and frozen for future use.
- Ovarian shielding (also called gonadal shielding) is a procedure in which a protective cover is placed on the outside of the body, over the ovaries and other parts of the reproductive system, to shield them from scatter radiation.
- Ovarian tissue freezing (also called ovarian tissue cryopreservation) is still considered an experimental procedure, for young girls who haven't gone through puberty and don't have mature eggs. It involves surgically removing part or all of an ovary and then freezing the ovarian tissue, which contains eggs. Later, the tissue is thawed and placed back in a woman. Although pregnancies have occurred as a result of this procedure, it's only an option for some types of cancer.
- Ovarian transposition (also called oophoropexy) is an operation to move the ovaries away from the part of the body receiving radiation. This procedure may be done during surgery to remove the cancer or through laparoscopic surgery.
- Radical trachelectomy (also called radical cervicectomy) is surgery used to treat women with early-stage cervical cancer who would like to have children. This operation removes the cervix, nearby lymph nodes, and the upper part of the vagina. The uterus is then attached to the remaining part of the vagina, with a special band that serves as the cervix.

- Treatment with gonadotropin-releasing hormone agonist (also called GnRHa), a substance that causes the ovaries to stop making estrogen and progesterone. Research is ongoing to assess the effectiveness of giving GnRHa to protect the ovaries.

If you choose to take steps to preserve your fertility, your doctor and a fertility specialist will work together to develop a treatment plan that includes fertility preservation procedures whenever possible.

## Finding More Information

- The Oncofertility Consortium <https://oncofertility.msu.edu/>
- Livestrong Fertility Program: <https://www.livestrong.org/what-we-do/program/fertility>
- American Society for Reproductive Medicine: <https://www.reproductivefacts.org>

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